**In the Claims:**

A complete listing of the claims as amended appears below.

Please amend claims 1, 13, 26 and 30 as set forth in the "Listing of Claims" below.

LISTING OF CLAIMS

Claim 1 (Currently Amended): A method of forming a polar liquid film on a surface of an organic film formed on a substrate in a processing vessel, the organic film comprising silicon, carbon, hydrogen and oxygen, said method comprising:

a modifying step of curing the organic film and imparting an affinity for the polar liquid to the organic film by irradiating the organic film with electron beams by means of an electron-beam irradiation device in a rare gas atmosphere formed in the processing vessel, the rare gas having an atomic number not smaller than that of argon; and

an applying step of applying the polar liquid to the surface of the organic film processed by the modifying step,

said modifying step comprising the sub-steps of:

curing the organic film by irradiating the organic film with the electron beams in the rare gas atmosphere of a first pressure in the processing vessel, the first pressure being below 1 torr; and

imparting the affinity for the polar liquid to the organic film by irradiating the organic film with the electron beams in the rare gas atmosphere of a second pressure, the second pressure being 1 torr or above, to obtain a water contact angle of 58° or less on the organic film.

Claims 2-7 (Canceled)

Claim 8 (Previously Presented): The method according to claim 1, wherein the voltage applied to the electron-beam irradiation device comprises:

a first voltage at the sub-step of curing the organic film, and

a second voltage lower than the first voltage at the sub-step of imparting the affinity.

Claim 9 (Previously Presented): The method according to claim 8, wherein the first voltage is above 20 kV and the second voltage is 20 kV or below.

Claims 10-12 (Canceled)

Claim 13 (Currently Amended): A method of forming an inorganic film on a surface of an organic film formed on a substrate in a processing vessel, the organic film comprising silicon, carbon, hydrogen and oxygen, said method comprising:

a modifying step of curing the organic film and imparting an affinity for the inorganic film to the organic film by irradiating the organic film with electron beams by means of an electron-beam irradiation device in a rare gas atmosphere formed in the processing vessel, the rare gas having an atomic number not smaller than that of argon; and

a film forming step of forming the inorganic film on the surface of the organic film processed by the modifying step,

said modifying step comprising the sub-steps of:

curing the organic film by irradiating the organic film with the electron beams in the rare gas atmosphere of a first pressure in the processing vessel, the first pressure being below 1 torr; and

imparting the affinity for the inorganic film to the organic film by irradiating the organic film with the electron beams in the rare gas atmosphere of a second pressure, the second pressure being 1 torr or above, to obtain a water contact angle of 58° or less on the organic film.

Claims 14-19 (Canceled)

Claim 20 (Previously Presented): The method according to claim 13, wherein the voltage applied to the electron-beam irradiation device comprises:

a first voltage at the sub-step of curing the organic film, and

a second voltage lower than the first voltage at the sub-step of imparting the affinity.

Claim 21 (Previously Presented): The method according to claim 20, wherein the first voltage is above 20 kV and the second voltage is 20 kV or below.

Claims 22-24 (Canceled)

Claim 25 (Previously Presented): The method according to claim 1, wherein the sub-step of imparting the affinity is carried out with the second pressure of 2 to 10 torr while heating the substrate at 200°C to 400°C.

Claim 26 (Currently Amended): A method of forming a polar liquid film on a surface of an organic film formed on a substrate in a processing vessel, the organic film comprising silicon, carbon, hydrogen and oxygen, said method comprising:

a modifying step of curing the organic film and imparting an affinity for the polar liquid to the organic film by irradiating the organic film with electron beams by means of an electron-beam irradiation device in a rare gas atmosphere formed in the processing vessel, the rare gas having an atomic number not smaller than that of argon; and

an applying step of applying the polar liquid to the surface of the organic film processed by the modifying step,

said modifying step comprising the sub-steps of:

curing the organic film entirely by irradiating the organic film with the electron beams with a first voltage applied to the electron-beam irradiation device, in the rare gas atmosphere of a first pressure in the processing vessel, the first pressure being below 1 torr;

further curing a surface of the organic film by irradiating the organic film with the electron beams with a second voltage lower than the first voltage applied to the electron-beam irradiation device, in the rare gas atmosphere of the first pressure in the processing vessel; and

imparting the affinity for the polar liquid to the organic film by irradiating the organic film with the electron beams with the second voltage applied to the electron-beam irradiation device, in the rare gas atmosphere of a second pressure, the second pressure being 1

torr or above, to obtain a water contact angle of 58° or less on the organic film.

Claim 27 (Canceled)

Claim 28 (Previously Presented): The method according to claim 26, wherein the first voltage is above 20 kV and the second voltage is 20 kV or below.

Claim 29 (Previously Presented): The method according to claim 13, wherein the sub-step of imparting the affinity is carried out with the second pressure of 2 to 10 torr while heating the substrate at 200°C to 400°C.

Claim 30 (Currently Amended): A method of forming an inorganic film on a surface of an organic film formed on a substrate in a processing vessel, the organic film comprising silicon, carbon, hydrogen and oxygen, said method comprising:

a modifying step of curing the organic film and imparting an affinity for the inorganic film to the organic film by irradiating the organic film with electron beams by means of an electron-beam irradiation device in a rare gas atmosphere formed in the processing vessel, the rare gas having an atomic number not smaller than that of argon; and

a film forming step of forming the inorganic film on the surface of the organic film processed by the modifying step,

said modifying step comprising the sub-steps of:

curing the organic film entirely by irradiating the organic film with the electron beams with a first voltage applied to the electron-beam irradiation device, in the rare gas atmosphere of a first pressure in the processing vessel, the first pressure being below 1 torr;

further curing a surface of the organic film by irradiating the organic film with the electron beams with a second voltage lower than the first voltage applied to the electron-beam irradiation device, in the rare gas atmosphere of the first pressure in the processing vessel; and

imparting the affinity for the inorganic film to the organic film by irradiating the organic film with the electron beams with the second voltage applied to the electron-beam

irradiation device, in the rare gas atmosphere of a second pressure, the second pressure being 1 torr or above, to obtain a water contact angle of 58° or less on the organic film.

Claim 31 (Canceled)

Claim 32 (Previously Presented): The method according to claim 30, wherein the first voltage is above 20 kV and the second voltage is 20 kV or below.